REMARKS

Claims 1-4, 8, 20, 22, 27, 28 and 31-34 are pending.

In Paragraph No. 5 at page 5 of the Office Action, claims 1-4, 8, 20, 22, 27, 28 and 31-34 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over USPN 5,154,818 (Harandi) in view of the Engelhard Corporation article, "Increase Gasoline Octane Light Olefin Yields with ZSM-5" (Engelhard).

Applicants respectfully traverse.

The FCC process for simultaneous segregated injections of hydrocarbon feeds A and B recited by the present claims leads to a higher yield in LPG products based on the temperature profile in the riser combined with the optimized temperature and dispersion conditions of the downstream injection feed B. See the originally filed specification at p. 15, ll. 1-5. The steam dispersion of feed B compensates a lower residence time for cracking in the reactor. *See* the specification at p. 16, ll. 15-19. Further, the hot regenerated catalyst resulting from the regeneration zone is recycled to the reaction zone to be contacted with a further hydrocarbon feed (*see* the specification at p. 17, ll. 12-13) and the catalyst to oil ratio is maintained during the cracking of feeds (*see* the specification at p. 18, ll. 11-16). Finally, feed A of better crackability contacts a more active, less contaminated catalyst suspension, attaining increased conversion into LPG.

Harandi discloses a FCC process comprising two feed stocks, a light hydrocarbon feed stock injected at the base of the riser, and a relatively heavy hydrocarbon feed stock injected downstream. Harandi found that the use of a relatively low temperature spent catalyst for cracking the light hydrocarbon feed stock has several beneficial results. Harandi at col. 5, ll. 62-

69. For example, the use of spent catalyst generally results in a relatively low first reaction zone temperature.

Harandi discovered that the catalytic cracking of relatively heavy hydrocarbon feedstocks is enhanced when relatively light hydrocarbon feedstocks are cracked in a first reaction zone and the effluent is introduced into a second reaction zone used for catalytically cracking the heavy hydrocarbon in the presence of freshly regenerated catalyst. *See* Harandi at col. 4, ll. 25-30. Harandi teaches a step of contacting a relatively heavy hydrocarbon feedstock and/or the reaction products thereof with a second catalyst stream comprising freshly regenerated catalyst. According to certain preferred embodiments, the second catalyst stream consists essentially of regenerated catalyst.

The Examiner acknowledges that Harandi fails to disclose that the heavy feed is injected with dispersion steam in an amount of 5 to 20 %.

The Examiner alleges that this would have been obvious in view of the following disclosure of Engelhard: "the balance between the increase in octane number, C3 and C4 olefin yields, and the decrease in gasoline yield will depend on factors such as feed characteristics, operating conditions, and type of Y catalyst used." Office Action at pp. 4-5; Engelhard at p. 1.

Applicants disagree.

First, the Engelhard article is directed to the use of the well-known ZSM-5 catalyst and is not particularly related to a FCC process comprising the injection of two separate feedstocks, such as taught by Harandi. This is demonstrated by even the title of Engelhard.

Second, the disclosure relied on by the Examiner is clearly too general to suggest the claimed content of dispersion steam. One of ordinary skill in the art would not understand from the teachings of Engelhard that the use of a dispersion team in an amount of 5 to 20 % with the

heavy feed would increase the production of LPG products. Indeed, Engelhard does not even suggest the use of dispersion steam at all, let alone provide one of ordinary skill in the art with any reason to employ a dispersion steam of any amount with the feed injected at the base of Harandi's riser as opposed to Harandi's downstream feed.

Accordingly, the Examiner failed to establish a reasonable *prima facie* case of obviousness.

Further, even if the Examiner had established a reasonable *prima facie* case of obviousness, the Examples of the present application demonstrate the unexpected superiority of using the claimed content of dispersion steam and would rebut the Examiner's alleged *prima facie* case of obviousness. *See* the specification at Examples 1-4 and the corresponding disclosure of the specification, showing the effects of injection location; dispersion conditions of the downstream injection location; and partial segregation of one of the feeds.

In view of the above, reconsideration and withdrawal of the Section 103 rejection of the present claims based on Harandi in view of Engelhard are respectfully requested.

Reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The U.S. Patent and Trademark Office is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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